Work Order ID 99 <i>April-05-13 1:17:35 PM</i>	319		*90	931	9*						Page 1
Item ID: D3183-043 Revision ID: Item Name: Bracket Asser Start Date: 4/04/13 Required Date: 4/12/13	Start Qty: 4.00 Req'd Qty: 4.00	3.0 # *4* *4*	Accept	*	N9000 Cust Item ID Customer:		100)* s	etup Start	14.	S1* S2*
	an: _ <u>M</u> LJ					e:	-	R	un Start	171	R1* R2*
Sequence ID/ Work Center ID	Operation Description	**	Set Up/ Run Hou		Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	
Draw Nbr Re	vision Nbr										
D3183 Re	v C1	•		•				• • • • • • • • • • • • • • • • • • • •		•	
*100 *100* Bandsaw • Jeaspa Bandsaw	BAND SAW Memo Cut blanks	: (1.500" x 2.250") 5.50	0.00	Po	13/05/01			_8_	* _ /2		
110 *110* HAAS I HAAS CNC vertical machine #1	HAAS CNC VERTICA Memo 1-Machine 32-Deburn	L MACHINING #1 D3183-3 as per Folio F 3-Scribe batch number	0.00 0.00 A322 and Dwg D3183	SI I	3-05-06 FK 1 3183- PD 1	3/05/0 3/05/09	7	_8	_P_		
120 *1 2 0 * QC Quality Control	QC2- Inspect parts off Memo	machine FAI/FAIB	0.00	FL PO	/3/05/0 13/05/0	7. 1		8	.Ø		•

	.,	,	
NCR:	Yes	/	No

WORK ORDER NON-CONFORMANCE / UPDATE

	1 1		•	**	•
DQA(ACC L	Date:	(3/0	5/22	
-		-	(1.	
Closed:	(1)	Date:	12	51/2	

					· ·				QA Closed:	Date:	121711
Work Orde	r: 9	931	9		DISPOSITION			AGAINST DE	PARTMENT	PROCESS	, (
		121		,	Rework		Skid-tube	Crosstube		;Water Jet	Engineering
Part N	o. <u>D</u> <u>=</u> o1	3/83	3-04	13	Scrap X		Machining 🖒	Small Fab	Pro	d. Eng. Coor.	Quality
		01			Use-as-is	Therr	noforming	Finishing	Rec/Stor	e/Packaging	Other
NCR N	o	3/U	0'50		Work Order Update		Large Fab	Composite	<u> </u>	Supplier	
			<u>, </u>							-!	, w ₂
Root				['	otion of work order update	Initial	Act		Sign &	,,	061
Cause	Date	Step	Qty		or Non-conformance	Chief Eng	Descr	ription	Date	Verification	QC Inspector
Doc/Data	_			Dim	01/1 10 100	40		-, -, -, -, -, -, -, -, -, -, -, -, -, -		FOAS	
Equip/Tooling	13/5/3	110)	וייוע	0.162 15 0.150.	9	Chitican	LUCA) LON	13-05-09	16	2/0
Operator	773	''					OF CRITIC	AL PART.		16,	0AS 16 28
Material						13/5/8		LUCATION AL PAPT. REPLACE		-119	1 -
Setup		İ		K.C. 00	etable nations	170	C	7		13/05/09	1300,109
Other					, , ,		JCRAY +	KEPLACE		F	1,700
Process Supplier	\dashv						B1241	15-8	R	, 1	
Training	-								18/ H.		
Unapproved		1						AH ()	177, 1		
Ollapproved		<u> </u>	<u>. </u>	l	F/	AULT CATE	GORY	14 01		F :	
Landir	ng Gear				General	<u> </u>		1/			
[Bending				Bend	Grain		<i>X</i>	Ovalized	'	Pressure/Forced
	Centre N	ot Concer	ntric to	o/s	BOM/Route	Hardwa	are		Over/Under	tolerance	Temperature/Cure
	Cracks				Broken/Damaged	Inspect	ion Incomplete		Part Incorre	ct	Weld
,	Crushed	/Crimped.			Burrs	Instruc	tions Incomplete/L	Jnclear	Part Lost/M	ssing	Wrong Stock Pulled
	Cuffs				Contamination	Maint	enance		Part Moved		
	Heat Tre	at			Countersink	Mislab	eled		Positioned ψ	Vrong	<u> </u>
	Inspection	on Strip in	Tube		Cut Too Short	Misrea	d		Power Loss/	Surge	Other
	Ripples i	n Bend			Drill Holes	Offset					······································
	Torque V	Waves in E	Extrusio	n [Drawing	Out of	Calibration				
[Turning :	Sequence		. [Finish	Out of	Sequence		1	<u></u>	
	Wave/Tv	wist in Tub	oe		Folio	Outside	e Dimensions				

Work Orde April-05-13 1:1		319		*99	319) *							Page 2
Item ID: Revision ID: Item Name:	D3183-043 Bracket Assen	nbly		Accept	*N	1900	14 0	100)*	Setup	Start Stop	171	S1* S2*
Start Date: Required Date: Reference:	4/04/13 4/12/13	Start Qty: 4.00 Req'd Qty: 4.00	*4* *4*			Cust Item II Customer:) :						
Approvals:	Process Pla	in:	Date:	Tooling: SPC (Y/N):		Da		-		Run	Start Stop	!/	R1* R2*
Sequence ID/ Work Center II 130 *130* QC Quality Control	D	Operation Description QC8- Inspect parts - second Memo	ond check	Set Up/ Run Hours 0.00	b . =	Tool ID	Tool#	Plan Code	Accept Qty	t Rej Qty		Reject Number	Insp. Stamp OAS O8
*140 *140* Small Fab Small Fab		Small Fab Memo Assemble D	3183-043 as per Dwg D31	0.00 0.00					8x	· ·			LS3/

150 *150* QC

Quality Control

QC5- Inspect part completeness to step on W/O

Memo

												DQA:	Da	te:	
NCR:	/es / -l	Vo				WORK ORDER NON-C	O	VFORM	AANCE / UP	DATE					
	*********	.,		· · · · · · · · · · · · · · · · · · ·							(QA Closed:	Da	te:	
Work Orde	· ·					DISPOSITION				AGAINST DE	EΡ	ARTMENT/	PROCESS		
WOIK OIGE	:1. 					Rework	ı		Skid-tube	Crosstube	7		Water Jet		Engineering
Part N	10.					Scrap	1		Machining	Small Fab	1	Prod	d. Eng. Coor.	\Box	Quality
					 -	Use-as-is		Therm	noforming	Finishing		Rec/Stor	e/Packaging		Other
NCR N	١٥					Work Order Update			Large Fab	Composite			Supplier		
											_	C' 0	•		
Root			_			ption of work order update		Initial	Act			Sign &	Verificatio	_	QC Inspector
Cause	Da	te S	Step	Qty		or Non-conformance	Ch	ief Eng	Descr	iption	+	Date	vernicatio	П	QC mspector
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Equip/Tooling															
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Other Process							ĺ				1				
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	Bend	ing				Bend		Grain				Ovalized		L	Pressure/Forced
	Cent	re Not C	Concen	tric to	o/s	BOM/Route		Hardwa	re			Over/Under	tolerance	L	Temperature/Cure
	Cracl	(S				Broken/Damaged		Inspecti	on Incomplete			Part Incorred	:t	L	Weld
	Crusi	ned/Crir	mped.			Burrs		Instruct	ions Incomplete/l	Jnclear	╝	Part Lost/Mi	ssing		Wrong Stock Pulled
	Cuffs					Contamination		Mainte	nance		╝	Part Moved			
	Heat	Treat				Countersink		Mislabe	led			Positioned V	Vrong		-
	Inspe	ection St	trip in	Tube		Cut Too Short		Misread	d		╛	Power Loss/:	Surge	L	Other

Offset

Out of Calibration

Out of Sequence

Outside Dimensions

Ripples in Bend

Turning Sequence

Wave/Twist in Tube

Torque Waves in Extrusion

Drill Holes

Drawing

Finish Folio

H:/FORMS/Quality Assurance\approved QA/NCRWO Rev G

Work Orde		319		*99?	319*							Page 3	
Item ID: Revision ID:	D3183-043			Accept	*N9000	า4ก	100)* s	etup S	tart top	*N:	S1*	
Item Name: Start Date: Required Date: Reference:	Bracket Assen 4/04/13 4/12/13	Start Qty: 4.00 Req'd Qty: 4.00	*4* *4*		Cust Item ID Customer:) :					"INI	S2*	·
Approvals:	Process Pla	nn:	Date:	_	Dat			R		tart top		R1* R2*	
Sequence ID/ Work Center II	D	Operation Description		Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty		eject umber	Insp. Stamp	— maker
*160 *160* Packaging Packaging		Identify as per dwg & Sto	SJ236B	0.00					()	3	15/1) 3 &	9
170 *17 0 * QC		QC21- Final Inspection -	Work Order Release	0.00					[3/	J/1	54)
Quality Control			·									MF 13-5-	13

												DQA:	Da	te: _	٠
NCR: Y	'es /	No				WORK ORDER NON-C	COI	NFORM	/IANCE / UP	DATE					
												QA Closed:	Da	te:	
Work Orde	r.					DISPOSITION				AGAII	NST DEF	PARTMENT	/PROCESS		
work Orde	·					Rework	1		Skid-tube	Crossti	ube		Water Jet		Engineering
Part N	0.					Scrap	1		Machining	Small	Fab	Pro	d. Eng. Coor.		Quality
					 	Use-as-is]	Therm	noforming	Finish	~ —	Rec/Stor	re/Packaging		Other
NCR N	0			· · · · · · · · · · · · · · · · · · ·	<u>. </u>	Work Order Update]		Large Fab	Compo	site		Supplier		
Root					Descri	ption of work order update	 	nitial	Ac	tion		Sign &			
Cause	D	ate	Step	Qty	C	or Non-conformance	Ch	ief Eng	Desc	ription		Date	Verificatio	n	QC Inspector
Doc/Data															
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Material														ļ	
Setup															
Other															
Process	_														
Supplier												,			
Training	_														
Unapproved					<u> </u>			T CATE	CORY				L		
				•			AUL	T CATE	JURY						
Landir F	ng Gear					General	Γ	Grain				Ovalized			Pressure/Forced
	—	iding	t Concer		0/5	Bend BOM/Route	\vdash	Hardwa	ro			Ovanzea Over/Under	tolerance		Temperature/Cure
·	Cra		Concer	itric to	^{0/3}	Broken/Damaged	-	4	on incomplete		-	Part Incorre		-	Weld
			Crimped,		-	Burrs	\vdash	4 .	ions Incomplete/	/Unclear	-	Part Lost/M		1	Wrong Stock Pulled
	Cuf		•	. 1	-	Contamination	\vdash	Mainte	•	Officical	<u> </u>	Part Moved	_	لـــا	trioil arout and
	 ·	is it Treat			-	Countersink	-	Mislabe				Positioned \			
			ı Strip in	Tube	-	Cut Too Short	\vdash	Misread				Power Loss/			Other
}	_	ples in		iuse		Drill Holes	-	Offset	•		<u> </u>	1. 05. 2033/	0-	L	
			aves in E	xtrusio	n -	Drawing			Calibration						

Out of Sequence

Outside Dimensions

Turning Sequence

Wave/Twist in Tube

Finish

Folio

H:/FORMS/Quality Assurance\approved QA/NCRWO Rev G

Work Order ID:

99319

Parent Item:

D3183-043

Parent Item Name:

Bracket Assembly

IPP Rev:Pick:A04.02.18New issueKJ/DS

Page 1

Start Date: 4/04/13 Required Date: 4/12/13

 Start Date: 4/04/13
 Required Date: 4/12/13

 Start Qty: 4.00
 Required Qty: 4.00

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Da Issued Iss	te Status µed /
D3121-21 Bolt	ب من المحمد المح	Manufactured	No			140	Each	26.0000	2	8	53/0	5/13
				Location		Loc Qty	Lo	c Code		T	_ /	
				ST235		25						•
				79732		. 4						
				85660		. 1						/
				89495		1					B992	92()
				89961 98283		8 11					DO	' '
				ST235B	,	1						
	-			94500) .	. 1						/
D3183-045 Bearing Assembly		Manufactured	No	<i>3</i> 10 0 0	•	100	Each	100.0000	2	8	1/3	15
				<u>Location</u>		Loc Qty	Lo	c Code				
				FG		5	-					
				88587	7	5						
				ST235B		95				-	•	
				9647	Į.	86				6		
				97336	5	1						
				98638	3	8						
M174B1.500X02.250 17-4 SS Bar 1.50 X2.250		Purchased	No			140	f	12.3037	0.4583	1.9296844	PO 1	3/05/01
				Location	•	Loc Qty	Lo	c Code				
				MAT049		12.3037						
*				11356		1.9037						
	•			11580		0.4				0		
				-₽ 1241:	58	10			_3.	.1		

												DQA:	Da	te:	
NCR:	Yes	/ No				WORK ORDER NON-	cor	NFORM	AANCE / UP	DATE		•			
							.153				QA C	losed:	Da	te:	
Work Ord	or:					DISPOSITION				AGAINST DE	PARTI	MENT,	/PROCESS		,
VVOIK OIG	-					Rework	7		Skid-tube	Crosstube]		Water Jet		Engineering
Part N	No.					Scrap	1		Machining	Small Fab	1	Pro	d. Eng. Coor.	П	Quality
	•		 			Use-as-is	1	Therm	noforming	Finishing	l Re	c/Sto	re/Packaging		Other
NCR I	No.					Work Order Update			Large Fab	Composite			Supplier		
				_										 ;	
Root						ption of work order update		Initial		tion	1	n &	.,		001
Cause		Date	Step	Qty		or Non-conformance	Cr	ief Eng	Desc	ription	D:	ate	Verificatio	n	QC Inspector
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Operator													``		
Material															
Setup	Ш														
Other							-							ļ	
Process															
Supplier															
Training			•											i	
Unapproved											<u> </u>		<u> </u>		
							AUI	T CATE	GORY						
Landi	ng G	Gear			_	General		-			٦			_	·
		Bending				Bend		Grain			Ovali			_	Pressure/Forced
		Centre No	ot Concer	ntric to (o/s	BOM/Route .		Hardwa	re		Over,	/Under	tolerance	_	Temperature/Cure
		Cracks				Broken/Damaged		Inspect	on Incomplete		Part I	ncorre	ct	\vdash	Weld
		Crushed/	Crimped.			Burrs		Instruct	ions Incomplete/	Unclear	Part I	_ost/M	issing		Wrong Stock Pulled
		Cuffs				Contamination		Mainte	enance		Part I	Moved			
		Heat Trea	ıt	1		Countersink		Mislabe	eled		Posit	ioned \	V rong	_	
	П	Inspection	n Strip in	Tube		Cut Too Short		Misread	d		Powe	er Loss/	'Surge	L	Other

Offset

Out of Calibration

Out of Sequence

Outside Dimensions

Turning Sequence

Wave/Twist in Tube

Ripples in Bend

Torque Waves in Extrusion

Drill Holes

Drawing

Finish

Folio

H:/FORMS/Quality Assurance\approved QA/NCRWO Rev G

DART AEROSPACE LTD	Work Order: 993 9	
Description: Bracket	Part Number: D3183-3	
Inspection Dwg: D3183 Rev: C1	Page 1 of	1

FIRST ARTICLE INSPECTION CHECKLIST

X First Article Prototype

Drawing		Actual			Method of	
Dimension	Tolerance	Dimension	Accept	Reject	Inspection	Comments
R0.190	+/-0.030	0190	7		R-Gi	
R0.063	+/-0.010	. 063	7		R-G	
0.182	+/-0.010	·183	7		FK-04	Ven.
0.070	+/-0.010	070	V		0	<i>y</i>
0.100	+/-0.010	.109	7		,	U _k
Ø0.201 x 0.100	+/-0.010	001.x FPla	7		,	b
0.182	+/-0.010	. 180	\		1	4
5.32	+/-0.030	5.32	7		11	,
5.036	+/-0.010	5. 036	7		6	1,
2.120	+/-0.010	2,120	7		. 1	ท
1.290	+/-0.010	1.290	>		41	h
0.365	+/-0.010	. 365	~		t/	31
0.218	+/-0.010	,218	>		"	1,
1.030	+/-0.010	1.030	7			11
1.90	+/-0.030	1.89	7		17	1)
1.012	+/-0.010	1,012	7		١,	61
Ø0.201 x 0.100	+/-0.010	-207 x .098	>		i)	"
0.786	+/-0.010	,786	7		31006	Height gange
Ø0.392	+0.002/-0.000	. 3931	7		Fix, OR	Mic.
R0.19	+/-0.030	.19	7		K-G	
3.954	+/-0.010	3,954	7		FK-04	Vern.
0.162	+/-0.010	,160	7		'\	1,
R0.19	+/-0.030	, 190	7		R - G1	
R0.25	+/-0.030	. 25	7		12-61.	
4.26	+/-0.030	4.265	/		FK-04	Ven.
2.080	+/-0.030	2.08			11	Pt.
1.155	+/-0.010	1.155	7		i,	n
0.162	+/-0.010	» 154	7		,,	l1
0.36	+/-0.030	. 36	1		61	11
0.615	+/-0.010	615	7		```	N
0.435	+/-0.010	.429	~ 429		4	*
0.200	+/-0.010	. 201	~		(<i>h</i>
0.381	+/-0.010	,381	7		h	•
0.032	+/-0.010	.029	7		`	117

				240	<u> </u>	
Measured by:	FK.	Audited by:	۵.۵	08	Prototype Approval:	N/A
Date:	13/05/07	Date:	1310510		Date:	N/A

Rev	Date	Change	Revised by	Approved
Α	03.11.12	New Issue P/O D3183-043	KJ/RF	
В	04.03.15	Changes as per revision C	KJ/JLM/RF	
С	06.03.09	Dwg Rev update	KJ/JLM , ,	
D	08.01.28	0.182 dimension removed	KJEC/DD	13/



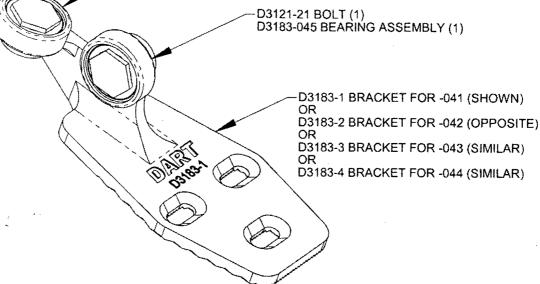


	DESIGN DRAWN BY		DRAWN BY	DART AEROSPACE I	
	CHECK	THE THE	APPROVED	DRAWING NO. D3183	REV. C
******	DATE	04.0)2.17	BRACKET ASSEMBLY	SCALE
	Α	A 03.01.24		NEW ISSUE	· · · · · · · · · · · · · · · · · · ·
	В	В 03.06.17		REMOVE BEARING; 1.012 WS 0.882	2
	С	C ,04.02.17		ADD -045/-9; 0.182 WAS 0.431	

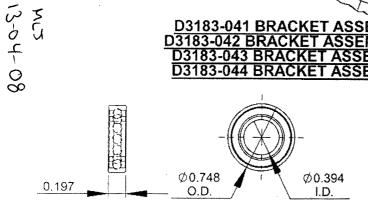
DEO ATTACHED

C: 1 → 1 0 D3121-21 BOLT (1) 04.11.09 10.830 WAS 0.850

D3183-045 BEARING ASSEMBLY (1)

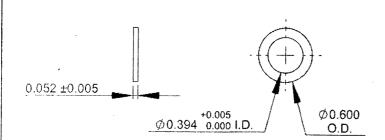


D3183-041 BRACKET ASSEMBLY (SHOWN)
D3183-042 BRACKET ASSEMBLY (OPPOSITE)
D3183-043 BRACKET ASSEMBLY (SIMILAR)
D3183-044 BRACKET ASSEMBLY (SIMILAR)



D3183-5 BEARING: FICATION CONTROL DRAWING

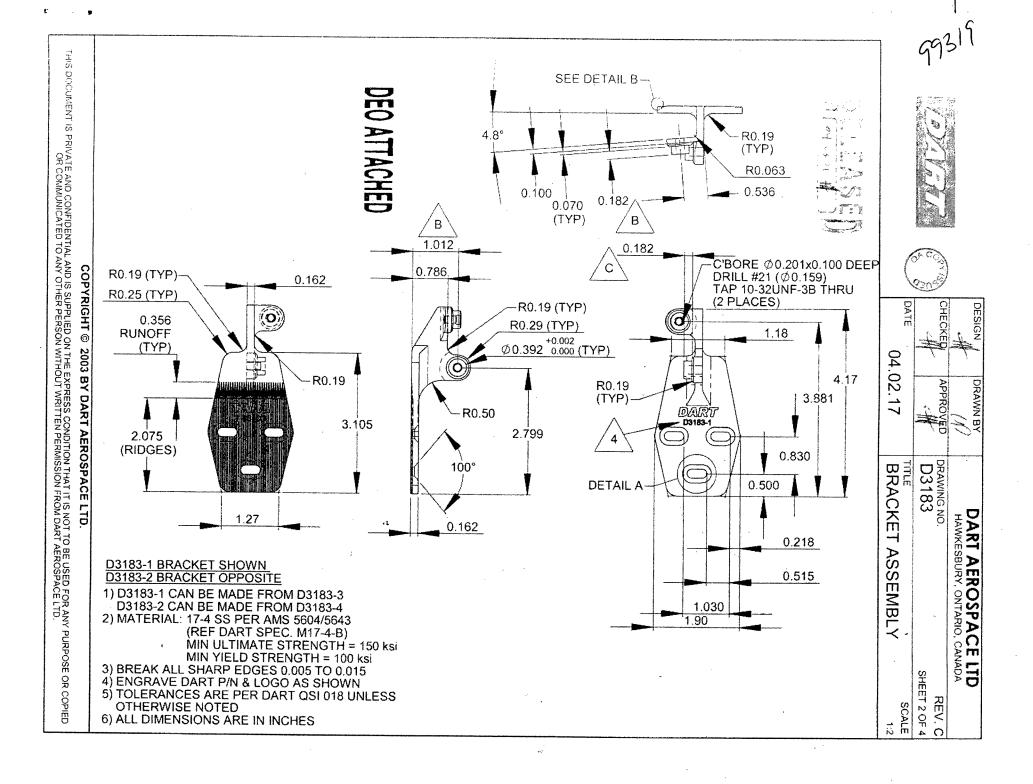
- 1) SINGLE ROW, DEEP GROOVE, CONRAD TYPE, SHIELDED 2) POSSIBLE SUPPLIER: NSK P/N 6800ZZ
- 3) ALL DIMENSIONS ARE IN INCHES

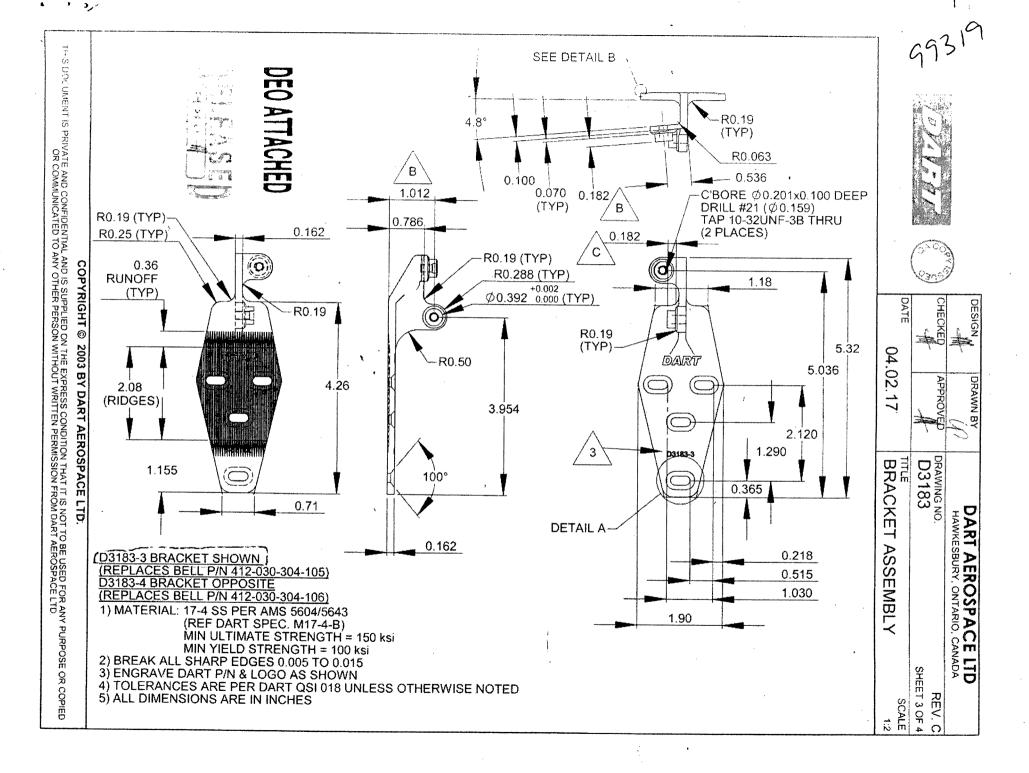


D3183-7 WASHER

- 1) MATERIAL: AISI 303 ROUND BAR (M303R) **ANNEALED**
- 2) BREAK ALL SHARP EDGES 0.005 TO 0.010 3) TOLERANCES ARE PER DART QSI 018 **UNLESS OTHERWISE NOTED**
- 4) ALL DIMENSIONS ARE IN INCHES

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r	
DESIGN	DRAWN,BY
	W
CHECKED	APPROVED
#	
DATE	

DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA

DRAWING NO.

REV. C

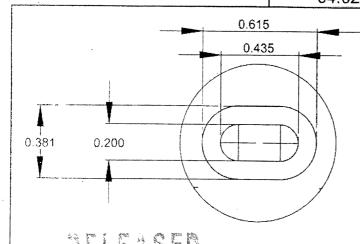
SHEET 4 OF 4 **SCALE**

04.02.17

TITLE **BRACKET ASSEMBLY**

D3183

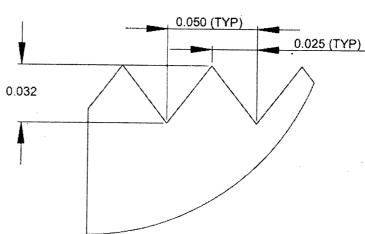
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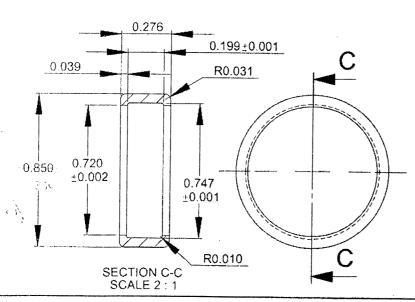


DETAIL A (2:1)

DEO ATTACHED

DETAIL B (20:1)





D3183-9 CAP

- 1) MATERIAL: DELRIN ROD, Ø1.00
- (REF DART SPEC. M-DELRIN-R1.00)
 2) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
- 3) ALL DIMENSIONS ARE IN INCHES

D3183-045 BEARING ASSEMBLY

1) ASSEMBLE D3183-5 BEARING AND D3183-9 CAP

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99319

DRAWING D3183		ET ASSEMBLY	REV.C1	DART AEROSPACE LTD ENGINEERING ORDER	D.E.O. NO. D3183-C1-1	SHEET NO. S	SCALE
DRAWN	P	CHECKED	基 一	1450 4800		DE APPR.	1415
DATE	10.05.14	DATE 10.	16.30	DATE (8.06.30	DATE 10/06/30	DATE 10/06/30	

D3183-5 BEARING

ADD POSSIBLE SUPPLIER: KML P/N 6800-ZZ

BASIC LOAD RATING REQUIREMENT:

Cr = 1720 N (386 lb) MIN [DYNAMIC]

Cor = 840 N (188 lb) MIN [STATIC]

REF PAR 10-012



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